

to determine whether the second character may be appended sequentially to the first character according to the rules associated with forming at least a portion of a complex character the selected language;

to append the second character sequentially to the first character if the second character may be appended to the first character according to the rules associated with forming at least a portion of a complex character the selected language; and

to prohibit appending the second character to the first character if the second character may not be appended to the first character according to the rules associated with forming at least a portion of a complex character the selected language.

REMARKS

Claims 1-18 are currently pending in the application. By this amendment, claims 19-22 have been cancelled; and claims 1-5, 14-16 and 18 have been amended. Applicants respectfully request reconsideration of the present claims in view of the foregoing amendments and the following remarks.

Entry of the above amendment is proper under 37 C.F.R. § 1.116 (a) in that the above Amendment (1) places the claims in condition for allowance; (2) places the claims in better condition for consideration on appeal, if necessary; (3) does not raise any new issues; and (4) does not add new claims without canceling a corresponding number of claims. For the reasons given above, entry of the above amendment under 37 C.F.R. § 1.116 is respectfully requested.

I. March 24, 2003 Telephone Interview:

Applicants thank Examiner Singh and Primary Examiner Feild for discussing the present invention during a March 24, 2003 telephone interview. The substance of the interview has been incorporated into the amendments above.

II. Claim Amendments:

As shown above, Applicants have incorporated the subject matter of dependent claims 19-22 into independent claims 1, 14, 16 and 18 respectively.

III. Prior Art Rejections:

Rejection of Claims 1-2 and 6-22 Under 35 U.S.C. §103(a) in View of Hetherington

Claims 1-2 and 6-22 are rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 6,411,948 to Hetherington et al. (hereinafter "Hetherington"). This rejection is respectfully traversed.

Applicants' claimed invention as embodied in independent claim 1 is drawn to a method of checking a sequence of input characters, wherein the sequence of input characters forms at least a portion of a complex character according to one or more rules of a selected language, comprising, *inter alia*, the steps of: (1) receiving a first character of a complex character; (2) determining whether the first character may begin a valid sequence of characters for forming a complex character according to the rules associated with the selected language; (3) if the first character may begin a valid sequence of characters for forming a complex character according to rules associated with the selected language, accepting the first character for display; and (4) if the first character may not begin a valid sequence of characters for forming a complex character according to rules associated with the selected language, prohibiting accepting the first character for display.

Applicants' claimed invention as embodied in independent claim 14 is drawn to a computer-readable medium on which is stored a computer program for checking a sequence of input characters, wherein the sequence of input characters forms at least a portion of a complex character according to one or more rules of a selected language, the computer program comprising, *inter alia*, instructions, which when executed by a computer, perform the steps of: (1) receiving a character of a complex character; (2) determining whether the character may be appended to a previous character to form a sequence of characters according to rules associated with forming a complex character of the selected language; (3) if the character may be appended

to the previous character according to the rules associated with forming a complex character of the selected language, appending the character to the previous character to form a sequence of characters according to the rules associated with the selected language; and (4) if the character may not be appended to the previous character according to the rules associated with forming a complex character of the selected language, prohibiting appending the character to the previous character.

Applicants' claimed invention embodied in independent claim 16 is drawn to a method of checking a sequence of input characters, wherein the sequence of input characters forms at least a portion of a complex character according to one or more rules of a selected language, comprising, *inter alia*, the steps of: (1) receiving an input character; (2) if the character is not associated with the selected language, displaying the character; (3) if the character is associated with the selected language, determining whether the character may be displayed as a single character according to the rules of the selected language; (4) if the character may not be displayed as a single character according to the rules of the selected language, determining whether the character may be appended to one or more additional characters to form a valid sequence of characters for forming at least a portion of a complex character according to the rules of the selected language; (5) if the character may not be appended to one or more additional characters to form a valid sequence of characters for forming at least a portion of a complex character, discarding the character; and (6) if the character may be appended to one or more additional characters to form a valid sequence of characters for forming at least a portion of a complex character, displaying the character.

Applicants' claimed invention as embodied in independent claim 17 is drawn to a method of establishing a sequence validation context of a sequence of characters comprising a complex character, comprising, *inter alia*, the steps of (1) determining a maximum number of characters that may comprise a valid sequence of characters according to the rules of a selected language, (2) beginning with a last simple character of a sequence of characters, determining whether the last character is valid as a complete sequence of characters comprising a complex character, (3) if the last character of the sequence of characters is valid as a complete sequence of

characters comprising a complex character, then returning a context of the last character as a context for a complex character, (4) if the last character of the sequence of characters is not valid as a complete sequence of characters comprising a complex character, then determining whether a combination of the last character and a character input immediately to the left of the last character is valid as a complete sequence of characters comprising a complex character, (5) if the combination of the last character and the character input immediately to the left of the last character is valid as a complete sequence of characters comprising a complex character, then returning a context for the combination as the context for a complex character, (6) if the combination is not valid as a complete sequence of characters comprising the complex character, then determining whether the combination combined with a next character to the left of the combination is valid as a complete sequence of characters comprising a complex character, and if not, then creating subsequent combinations of characters by adding one character at a time to the left of the last subsequent combination until the maximum number of characters that may comprise a valid sequence have been combined to form a sequence of characters that may be checked for validity as a complete sequence of characters comprising a complex character, and (7) if any one of the subsequent combinations of characters are valid as a complete sequence of characters comprising a complex character according to the rules of the selected language, then returning a context for the one subsequent combination as the context for a complex character.

Applicants' claimed invention as embodied in independent claim 18 is drawn to a system for checking a sequence of input characters, wherein the sequence of input characters forms at least a portion of a complex character according to one or more rules of a selected language, comprising, *inter alia*, (1) a computer program module operative (i) to receive a first character; (ii) to determine whether the first character may be the first character of a sequence of characters for forming at least a portion of a complex character according to the rules associated with the selected language; (iii) to receive a second character; (iv) to determine whether the second character may be appended sequentially to the first character according to the rules associated with forming at least a portion of a complex character the selected language; (v) to append the second character sequentially to the first character if the second character may be

appended to the first character according to the rules associated with forming at least a portion of a complex character the selected language; and (vi) to prohibit appending the second character to the first character if the second character may not be appended to the first character according to the rules associated with forming at least a portion of a complex character the selected language.

Applicants' independent claims described above are directed to a method, a computer-readable medium capable of performing a method, and a system comprising a computer program module for performing a method, wherein the method comprises automatically correcting/validating the formation of a complex character of a selected language as each character is inputted by a user into a sequence of characters to form the complex character. As described on page 2, lines 12-16 of Applicants' specification, complex characters may be formed from a sequence of simple characters such as vowels, consonants, diacritics, tone marks, and accents. Applicants' invention insures that the inputted sequence of simple characters forms complex characters according to rules of a selected language. As disclosed from page 18, line 11 to page 19, line 16 of the specification, the present invention relates to the formation of complex characters, which may be used to form words in the selected language.

Applicants' disclosed method automatically initiates one or more validation steps during the process of adding a new character to a sequence of characters. The validation steps may include: (1) determining whether the character may be appended to a previous character to form a sequence of characters according to rules associated with forming at least a portion of a complex character of the selected language, (2) if the character may not be appended to the previous character according to the rules associated with forming at least a portion of a complex character of the selected language, prohibiting appending the character to the previous character, and (3) if the character may not be appended to one or more additional characters to form a valid sequence of characters forming at least a portion of a complex character, discarding the character.

The teaching of Hetherington fails to teach or suggest Applicants' claimed method, computer-readable medium capable of performing the method, and system comprising a computer program module for performing the method. In particular, the teaching of

Hetherington fails to teach or suggest (1) the input of characters used to form a complex character of a selected language, and (2) the automated checking/validation of a sequence of characters used to form a complex character as each character is inputted by the user.

The teaching of Hetherington does not provide any guidance to one of ordinary skill in the art during the formation of a syllabary symbol or an ideograph, such as in the Japanese language, as to whether the string of text or characters entered are valid according to rules of a selected language, such as the Japanese language. Using the method disclosed in the teaching of Hetherington, a user may intentionally or erroneously create a string of characters, wherein the string of characters violate one or more rules of forming a complex character of a select language. Further, using the method disclosed in the teaching of Hetherington, a user may intentionally or erroneously begin a string of characters with a first character, wherein the first character cannot begin a valid string of characters used to form a complex character of a select language. Unlike the present invention, the teaching of Hetherington does not provide a validation/checking system during the formation of complex characters, wherein rules of a selected language are followed as each character is inputted by a user to form the complex character according to the rules of forming a complex character of the selected language.

To support Applicants' position, Applicants note that in column 10, lines 33-38, the teaching of Hetherington discloses:

The fields of an IString object **202** may preferably be individually and independently edited, allowing artificial promotion within sortString field **206** as described above, replacement of an erroneously selected ideograph in baseString field **204**, or correction of a phonetic spelling within altString field **208**.

Applicants respectfully submit that the above disclosure in the teaching of Hetherington suggests to one of ordinary skill in the art that Hetherington's disclosed system does not validate and check the formation of complex characters as each character is inputted into a string of characters. As discussed above, the teaching of Hetherington does not prevent a user from erroneously stringing together a sequence of characters, wherein the resulting string of characters violates one or more rules of forming a complex character of a selected language.

In addition to the above-noted deficiencies, the teaching of Hetherington fails to teach or suggest a method of inputting characters of a selected language wherein entry of each simple character triggers a method step wherein a determination is made (1) whether or not the inputted character can be a first character in the formation of a valid sequence representing a complex character; (2) whether or not the inputted character can be placed to the right of an existing sequence of characters in the formation of a complex character; (3) whether or not the inputted character and any additional characters in a sequence of simple characters forms a complex character; and (4) whether or not the inputted character in combination with other characters in a sequence of simple characters equals a maximum number of simple characters for forming a complex character.

Given that the teaching of Hetherington fails to teach or suggest Applicants' claimed invention as featured in Applicants' independent claims 1, 14 and 16-18, the teaching of Hetherington cannot make obvious Applicants' claimed invention as featured in claims 1, 14 and 16-18. Since claims 2, 6-13 and 15 depend from claims 1 and 14, and recite additional claim features, the teaching of Hetherington cannot make obvious claims 2, 6-13 and 15. Accordingly, Applicants respectfully request withdrawal of this rejection.

In the January 23, 2003 Office Action, Examiner Singh argues that Applicants' claimed invention is not directed to the formation of complex characters formed from simple characters (page 7, lines 9-22). As noted above, Applicants have incorporated the subject matter of claims 19-22 into independent claims 1, 14, 16 and 18 respectively. Applicants further note that independent claim 17 already contains claim features related to the formation of complex characters from simple characters. All of the independent claims specifically recite that complex characters are being formed.

Examiner Singh further argues that the teaching of Hetherington discloses a method of forming complex characters, wherein a determination is made as to whether a newly added character can be placed next to, between or in place of a character in a sequence of characters forming a complex character. Examiner Singh points to a process of Hetherington wherein a user manually selects one symbol from a list of possible symbols, which could be

represented by the phonetically similar words inputted by the user (Hetherington, column 15, beginning in line 54). Applicants disagree that such a process is similar to or makes obvious Applicants' claimed invention.

Once again, in the teaching of Hetherington, a user may input a string of characters that violates one or more rules of forming a complex character of a selected language. The teaching of Hetherington provides multiple possible choices of symbols or ideographs to a user due to the uncertainty of whether an inputted string of characters forms any valid symbol or ideograph of a selected language. By providing a user with multiple possible choices of symbols or ideographs, it is clear that the teaching of Hetherington is not verifying and validating the inputted sequence of characters according to the rules of forming a complex character of a selected language.

For at least the reasons given above, Applicants respectfully submit that the teaching of Hetherington fails to make obvious claims 1-2 and 6-18.

B. Rejection of Claims 3-5 Under 35 U.S.C. §103(a) in View of Hetherington In Combination With Hetherington2

Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hetherington in view of U.S. Patent No. 6,272,495 to Hetherington (hereinafter "Hetherington2"). This rejection is respectfully traversed.

Applicants' claims 3-5 are directed to the method of independent claim 1, wherein a state transition table is utilized in the determination of whether a second character may be appended to the first character according to rules associated with forming a complex character of the selected language. A description of Applicants' claimed invention as embodied in independent claims 1, and a description of the teaching of Hetherington may be relied upon above.

In addition to the above-noted deficiencies in the teaching of Hetherington discussed above, the teaching of Hetherington also fails to teach or suggest the use of state transition tables as recited in Applicants' claims 3-5. The Office Action acknowledges that

Hetherington fails to teach or suggest state transition tables in which a state is assigned to characters according to the rules of a selected language (January 23, 2003 Office Action, page 6, lines 1-4). The Office Action relies on the teaching of Hetherington2 to allegedly cure the above-noted deficiencies in the teaching of Hetherington.

The teaching of Hetherington2 is directed to a method of processing free-format data stored in a computing system. For example, the teaching of Hetherington2 is directed to methods of processing free-format data, such as an address, which contains both numbers and text, by analyzing each element of the free-format data, the relation of each element to other elements within the free-format data, and the "attributes" (e.g., the street name, the street number, and the town name) of the data.

The teaching of Hetherington2 has nothing to do with methods, computer-readable mediums, or systems for forming complex characters or rules associated with forming complex characters of a selected language. Further, the teaching of Hetherington2 has nothing to do with a method of converting inputted text (e.g., English) into a syllabary symbol or ideograph (e.g., Japanese) as disclosed in the teaching of Hetherington.

Applicants respectfully submit that one of ordinary skill in the art would not have been motivated to combine the teachings of Hetherington and Hetherington2 given that the two references have nothing to do with each other. The only similarities in Hetherington and Hetherington2 noted by Applicants is that both Hetherington and Hetherington2 fail to teach or suggest each of the claim features of Applicants' claimed invention embodied in independent claims 1, 14, 16, 17 and 18 as described above. Consequently, even if the combination of Hetherington and Hetherington2 were deemed proper, the combined teaching of Hetherington and Hetherington2 fails to teach or suggest Applicant's claimed invention. Since the combined teaching of Hetherington and Hetherington2 fails to teach or suggest Applicants' claimed method recited in independent claim 1, the combined teaching of Hetherington and Hetherington2 cannot make obvious claims 3-5, which depend from Applicants' independent claim 1 and recite additional claim features.

For at least the reasons given above, Applicants respectfully submit that the combined teaching of Hetherington and Hetherington2 does not make obvious Applicants' claimed invention embodied in dependent claims 3-5. Accordingly, Applicants respectfully request withdrawal of this rejection.

In the January 23, 2003 Office Action, Examiner Singh argues that one of ordinary skill in the art would have sought out the teaching of Hetherington2 given the teaching of Hetherington. Applicants disagree for the reasons given in Applicants' November 08, 2002 Amendment and Response.

Applicants respectfully submit that (1) the teaching of Hetherington2 is nonanalogous art, (2) there is no suggestion or motivation provided to one of ordinary skill in the art in the teaching of Hetherington for the need to use free-format data tables of Hetherington2 to correct some problem of forming phonetic equivalents in the teaching of Hetherington, and (3) even if the combined teachings is proper, the combined teaching still fails to make obvious Applicants' claimed invention.

For at least the reasons given above, Applicants respectfully submit that the combined teaching of Hetherington and Hetherington2 is improper, and even if proper, fails to make obvious Applicants' claimed invention embodied in dependent claims 3-5.

IV. Conclusion:

For at least the reasons given above, Applicants submit that claims 1-18 define patentable subject matter. Accordingly, Applicants respectfully request allowance of these claims.

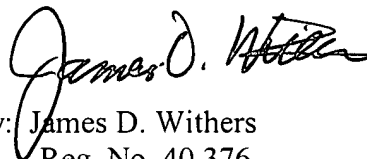
No additional fees are believed due; however, the Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, to Deposit Account No. 13-2725.

Should the Examiner believe that anything further is necessary to place the application in better condition for allowance, the Examiner is respectfully requested to contact Applicants' representative at the telephone number listed below.

Amendment And Response Under 37 C.F.R. §1.116
Serial No. 09/345,195

Respectfully submitted,

MERCHANT & GOULD, LLC

A handwritten signature in black ink, appearing to read "James D. Withers". The signature is fluid and cursive, with the first name "James" being the most prominent.

By: James D. Withers
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)	Art Unit: 2176
)	
Jurion et al.)	Examiner: Singh, R.
)	
Serial No.: 09/345,195)	Microsoft Docket No.: MS131071.1
)	
Filed: June 30, 1999)	M&G Docket No.: 60001.0101US01

For: **METHOD AND SYSTEM FOR CHARACTER SEQUENCE
CHECKING ACCORDING TO A SELECTED LANGUAGE**

**MARKED UP VERSIONS OF CLAIMS ACCOMPANYING APPLICANTS'
MARCH 24, 2003 AMENDMENT AND RESPONSE UNDER 37 C.F.R. §1.116**

Applicants provide the following marked up versions of the claims, which were amended in Applicants' March 24, 2003 Amendment and Response filed in response to the January 23, 2003 final Office Action. In the amendments below, [brackets] are used to show where terms were removed from the claims, while underlines are used to show where terms were added to the claims.

In the Claims

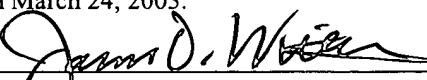
The following amendments were made to the claims:

Claims 19-22 were cancelled without prejudice or disclaimer.

Claims 1-5, 14-16 and 18 were amended as follows:

1. (Twice Amended) A method of checking a sequence of input characters, wherein the sequence of input characters forms at least a portion of a complex character according to one

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James D. Withers - Reg. No. 40,376

or more rules of a selected language, comprising the steps of:

receiving a first character of a complex character;

determining whether the first character may begin a valid sequence of characters for forming a complex character according to the rules associated with the selected language;

if the first character may begin a valid sequence of characters for forming a complex character according to rules associated with the selected language, accepting the first character for display; and

if the first character may not begin a valid sequence of characters for forming a complex character according to rules associated with the selected language, prohibiting accepting the first character for display.

2. (Amended) The method of Claim 1, further comprising the steps of:

receiving a second character;

determining whether the second character may be appended to the first character according to rules associated with forming a complex character of the selected language;

if the second character may be appended to the first character according to the rules associated with forming a complex character of the selected language, appending the second character sequentially to the first character; and

if the second character may not be appended to the first character according to the rules associated with forming a complex character of the selected language, prohibiting appending the second character to the first character.

3. (Twice Amended) The method of Claim 2, wherein the step of determining whether the second character may be appended to the first character according to rules associated with forming a complex character of the selected language includes the steps of:

in a state transition table, assigning a first state to the first character according to the rules associated with the selected language;

assigning a second state to the second character according to the rules associated with the selected language;

determining whether the state transition table includes a state transition from the first state to the second state;

if the state transition table includes a state transition from the first state to the second state, determining the second character may be appended to the first character according to the rules associated with forming a complex character of the selected language; and

if the state transition table does not include a state transition from the first state to the second state, determining the second character may not be appended to the first character according to the rules associated with forming a complex character of the selected language.

4. (Amended) The method of Claim 3, further comprising the steps of:

determining whether appending the second character to the first character creates a complete sequence of characters to form a complex character according to the rules associated with the selected language;

if the sequence of characters is a complete sequence of characters forming a complex character according to the rules associated with the selected language, determining whether a third input character may begin a second valid sequence of characters for forming a complex character according to rules associated with the selected language;

if the third character may begin a second valid sequence of characters for forming a complex character according to rules associated with the selected language, accepting the third character for display; and

if the third character may not begin a second valid sequence of characters for forming a complex character according to rules associated with the selected language, prohibiting accepting the third character for display.

5. (Amended) The method of Claim 4, wherein the step of determining whether appending the second character to the first character creates a complete sequence of characters to form a complex character according to the rules associated with the selected language includes the step of:

determining whether the second state points to a third transition state representing a reset transition action.

14. (Twice Amended) A computer-readable medium on which is stored a computer program for checking a sequence of input characters, wherein the sequence of input characters forms at least a portion of a complex character according to one or more rules of a selected language, the computer program comprising instructions, which when executed by a computer, perform the steps of:

receiving a character of a complex character;

determining whether the character may be appended to a previous character to form a sequence of characters according to rules associated with forming a complex character of the selected language;

if the character may be appended to the previous character according to the rules associated with forming a complex character of the selected language, appending the character to the previous character to form a sequence of characters according to the rules associated with the selected language; and

if the character may not be appended to the previous character according to the rules associated with forming a complex character of the selected language, prohibiting appending the character to the previous character.

15. (Twice Amended) The computer-readable medium of Claim 14, further comprising the steps of:

determining whether the sequence of characters is a complete sequence forming a complex character in accordance with the rules associated with the selected language;

if the sequence of characters is a complete sequence of characters forming a complex character according to the rules associated with the selected language, prohibiting appending additional characters to the sequence of characters.

16. (Twice Amended) A method of checking a sequence of input characters, wherein the sequence of input characters forms at least a portion of a complex character according to one or more rules of a selected language, comprising the steps of:

receiving an input character;

if the character is not associated with the selected language, displaying the character;

if the character is associated with the selected language, determining whether the character may be displayed as a single character according to the rules of the selected language;

if the character may not be displayed as a single character according to the rules of the selected language, determining whether the character may be appended to one or more additional characters to form a valid sequence of characters for forming at least a portion of a complex character according to the rules of the selected language;

if the character may not be appended to one or more additional characters to form a valid sequence of characters for forming at least a portion of a complex character, discarding the character; and

if the character may be appended to one or more additional characters to form a valid sequence of characters for forming at least a portion of a complex character, displaying the character.

18. (Twice Amended) A system for checking a sequence of input characters, wherein the sequence of input characters forms at least a portion of a complex character according to one or more rules of a selected language, comprising:

a computer program module operative

to receive a first character;

to determine whether the first character may be the first character of a sequence of characters for forming at least a portion of a complex character according to the rules associated with the selected language;

to receive a second character;

to determine whether the second character may be appended sequentially to the first character according to the rules associated with forming at least a portion of a complex character the selected language;

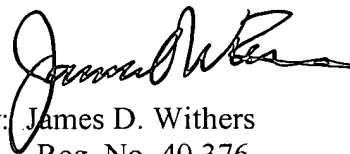
to append the second character sequentially to the first character if the second character may be appended to the first character according to the rules associated with forming at least a portion of a complex character the selected language; and

to prohibit appending the second character to the first character if the second character may not be appended to the first character according to the rules associated with forming at least a portion of a complex character the selected language.

MARKED UP VERSIONS OF CLAIMS ACCOMPANYING APPLICANTS' MARCH 24, 2003
AMENDMENT AND RESPONSE UNDER 37 C.F.R. §1.116
Serial No. 09/345,195

Respectfully submitted,

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